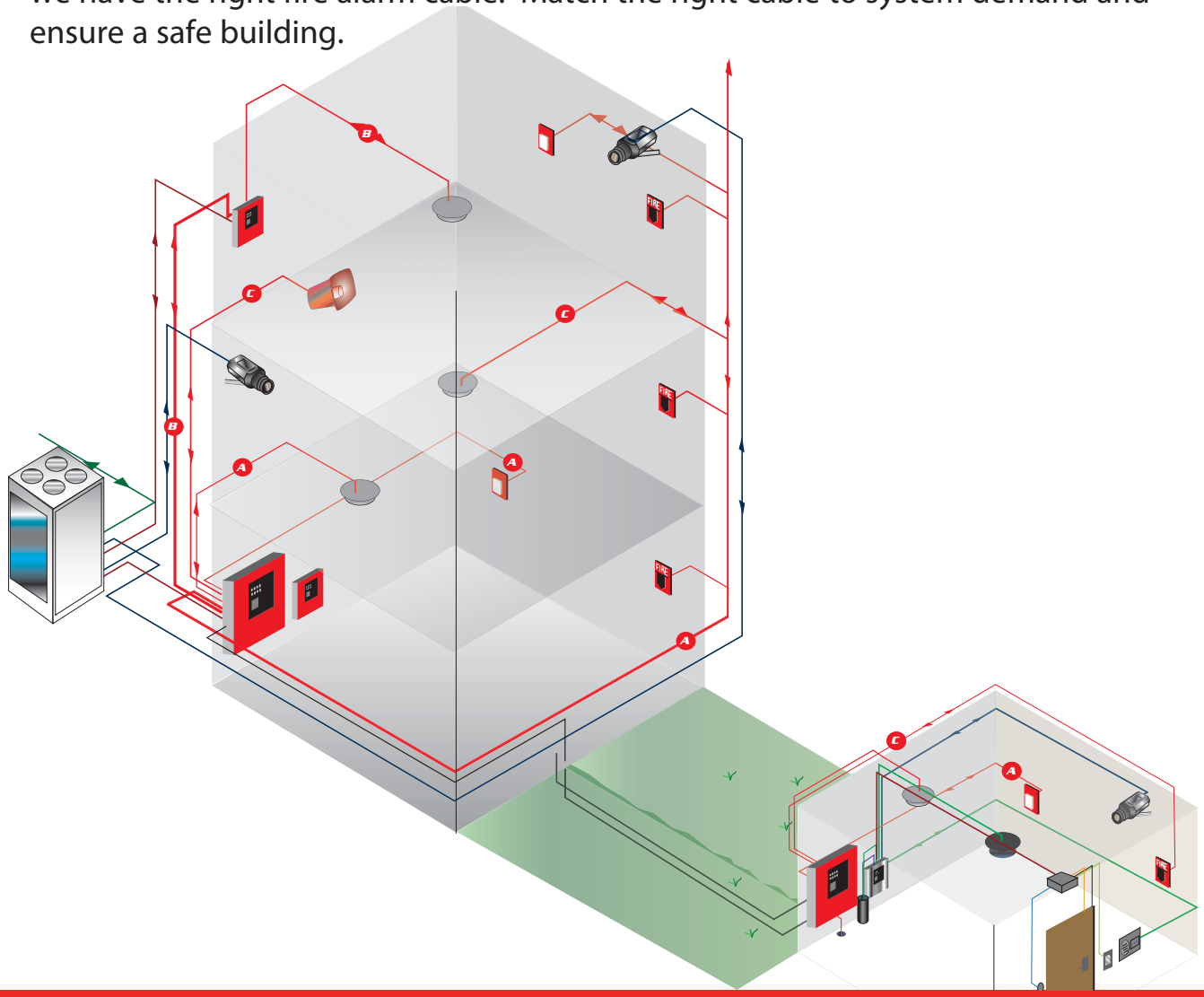
Fire Alarm Cables

Life. Safety. Fire alarm systems serve as life lines to safe and secure buildings. As one of the original manufacturers of fire alarm cable, West Penn Wire knows proper cable selection is critical to effective system performance. With over 100 variations of cable constructions, environmental ratings, colors, and striping options, we have the right fire alarm cable. Match the right cable to system demand and ensure a safe building.



FEATURES

- Solid Conductor Constructions
- Stranded Conductor Constructions
- Power Limited Data Grade Designs
- Available in Multiple Jacket Colors
- Avialable with Strips
- Circuit Integrity Designs
- Local Law 5 (NYC) Designs
- Indoor/Outdoor Design in Aquaseal Section-

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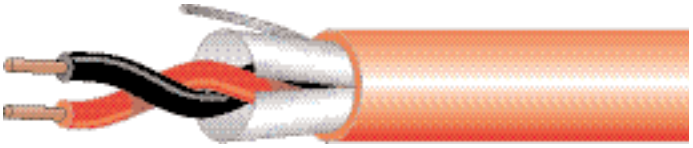
Fire Alarm Cables

WEST PENN WIRE

UNSHIELDED FIRE ALARM CABLES

UNSHIELDED FIRE ALARM CABLES										
AWG Size	# of Cond.	FPL			FPLR	FPLP	NPLF	NPLFP	FPLR-CIC	FPLR-CI
		Aquaseal	Low Cap	Parallel	Mid-Cap	Mid-Cap	Mid-Cap	Mid-Cap	Mid-Cap	Mid-Cap
12 Solid	2			974	998	60995B			5020UZ	5020UM
14 Solid	2			972	994	60993B	1994	251994	5120UZ	5120UM
14 Solid	4				700	60700B				5122UM
16 Solid	2		D990	971	990	60991B	1990		5220UZ	5220UM
16 Solid	4				992	60164B				5222UM
18 Solid	2		D980	970	980	60980B		251980		5320UM
18 Solid	4		D982		982	60992B				5322UM
12 Strd	2	AQ227			998S				5000UZ	
14 Strd	2	AQ226			994S				5100UZ	
14 Strd	4	AQ246								
16 Strd	2	AQ225			990S				5200UZ	
16 Strd	4	AQ245								
18 Strd	2	AQ224								
18 Strd	4	AQ244								

SHIELDED FIRE ALARM CABLES



SHIELDED FIRE ALARM CABLES										
AWG Size	# of Cond.	FPL		FPLR	FPLP		NPLF	NPLFP	FPLR-CIC	FPLR-CI
		Aquaseal	Low Cap	Mid-Cap	Mid-Cap	Low-Cap	Mid-Cap	Mid-Cap	Mid-Cap	Mid-Cap
12 Solid	2			999	60994B		1999		5020FZ	5020FM
12 Solid	4								5022FZ	5022FM
14 Solid	2		D995	995	60992B		1995	251995	5120FZ	5120FM
14 Solid	4						1997			5122FM
16 Solid	2		D991	991	60990B	D60990	1991	251991	5220FZ	5220FM
16 Solid	4			993	603164B				5222FZ	5222FM
18 Solid	2		D975	975	60975B	D60975	1975	251975		5320FM
18 Solid	4			977	60977B					5322FM
12 Strd	2	AQ296							5000FZ	
14 Strd	2	AQ295							5100FZ	5100FM
14 Strd	4								5200FZ	
16 Strd	2	AQ294								5200FM
16 Strd	4	AQ3245								
18 Strd	2	AQ293								5300FM
18 Strd	4	AQ3244								

FIRE ALARM SYSTEMS AND CABLE:

West Penn Wire is the leading manufacturer of fire alarm system cables for the fire protection industry.Our innovative product line includes all power-limited and non-power limited cables for use in the NECArticle 760.West Penn Wire includes Aquaseal power-limited fire alarm system cables.AquasealWater-Resistant cable is a trademark for the industries original indoor/outdoor low-capacitance fire alarmsystem cables.
NATIONAL ELECTRIC CODE (NEC) ARTICLE 760:NEC Article 760 covers the installation of wiring and equipment of fire alarm systems, including all circutis controlled and powered by the fire alarm system.These systems are defined in the NEC as "Theportion of the wiring system between the load side of the overcurrent devices or the power-limited supplyand the connected equipment of all circuits powered and controlled by the fire alarm system."

POWER-LIMITED FIRE ALARM SYSTEM CABLES:

Three types of power-limited fire alarm cables are currently in use.

1.Type FPL- FPL power-limited fire alarm cable is listed by the NEC as being suitable for general purpose fire alarm use.This listing excludes installation in riser, ducts, plenums and other spaceused for environmental air unless the cable is installed in conduit.All FPL cables are listed as being resistant to the spread of fire and must pass both UL test 1424 and the vertical flame testUL 1581.

2.Type FPLR- FPLR power-limited fire alarm riser cable is listed as being suitable for use in a vertical run in a shaft or from floor to floor.All FPLR cables are listed as having fire-resistantcharacteristics capable of preventing fire from traveling from floor to floor.Riser cables must pass both UL test 1424 and the Vertical riser test UL 1666.

3.Type FPLP- FPLP power-limited fire alarm cable is listed by the NEC as being suitable for usein ducts, plenums and other space used for environmental air.All FPLP cable are listed as having adequate fire resistant and low-smokeproducing characteristics and must pass bothUL test 1424 and UL Stiener tunnel test 910. (NFPA262)

- No Voltage Rating Markings on PLFA Cables
- CL3 and CM rated cables, which have a voltage rating of 300V are permitted to be usedas PLFA cables.
- Power-limited is inherently limited by the power supply
    - Transformer
    - Other Power Supply Devices

NON POWER-LIMITED FIRE ALARM SYSTEM CABLES:

1.Type NPLF- NPLF Non power-limited fire alarm cable is listed by the NEC as being suitable for general purpose fire alarm use.This listing excludes installation in riser, ducts, plenums and other space used for environmental air unless the cable is installed in conduit.All NFPL cables are listed as being resistant to the spread of fire and must pass both UL test 1424 and the verticalflame test UL 1581.

2.Type NPLFP- NPLFP Non power-limited fire alarm cable is listed by the NEC as being suitable for use in ducts, plenums and other space used for environmental air.All NPLFP cable are listed as having adequate fire resistant and low-smoke-producing characteristics and must pass bothUL test 1424 and UL Stiener tunnel test 910.(NFPA262)

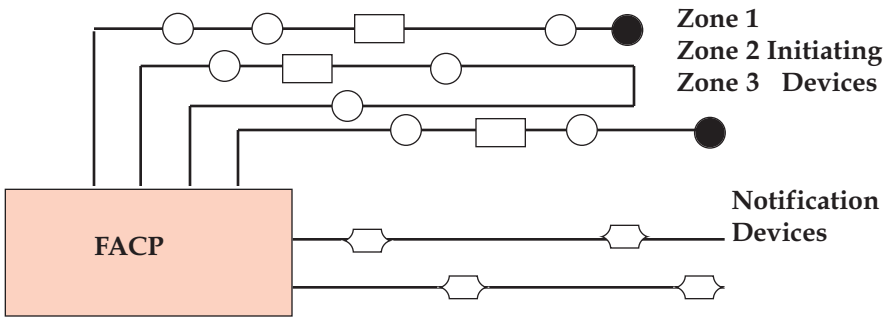
- Power source of NPLFA circuits output voltage shall not exceed 600 volts.Nominal
- Marking on NPLF cables are not addressed as 150V.For use in 150V or less on NPLF circuits(out of tray or conduit)
- Class 1 cables can be installed and used as NPLFA, but must be placed in a tray or conduit.• Overcurrent devices shall be located at the point where the device to be protected receives its supply.

CONVENTIONAL (STANDARD) FIRE ALARM SYSTEM

Conventional Fire Alarm Systems, in their various forms, have been around for many of years and havechanged little in that time in terms of technology although design and reliability have impovedsignificantly.However, Conventional systems are a well proven technology protecting many hundreds ofthousands of properties worldwide. A Conventional Fire Alarm System is often the natural choice forsmaller systems or where budget constraints exist.

In a Conventional Fire Alarm System the "Intelligence"of the system resides solely within the Fire AlarmControl Panel.The panel receives a trigger signal from a Conventional Detector or Initiating DeviceCircuit (Smoke, heat, flame detectors) which in turn signals the condition to the Notification (Indicating)Device Circuit such as alarm sounders, horns, strobes and other remote signalling equipment.

Conventional detectors are normally connected to the Fire Control Panel via dedicated circuits, each circuit protecting a designated "Zone"or area of the building.The system has different modes:Normal,Alarm, Trouble, and others, depending on the Fire Alarm Manufacturer.



CONVENTIONAL FIRE ALARM CABLE SELECTION

The designer must be sure that the last device on the circuit has sufficient voltage to operate the devicewithin its rated voltage.When calculating the voltage available to the last device, it is necessary to ocon-sider the voltage drop due to the resistance of the wire.The larger the wire, the less the voltage drop.Generally, for purposes of determining the wire size necessary for the system, it is best to consider all ofthe devices as "lumped"on the end of the supply circuit, this simulates the worst case.

Typical wire size resistance:

			Loop Resistance
18 AWG solid:	Approximately	6.5ohms/1000ft.	13ohms/1000ft.
16 AWG solid:	Approximately	4.1ohms/1000ft.	8.2ohms/1000ft.
14 AWG solid:	Approximately	2.6ohms/1000ft.	5.2ohms/1000ft.
12 AWG solid:	Approximately	1.8ohms/1000ft.	3.6ohms/1000ft.

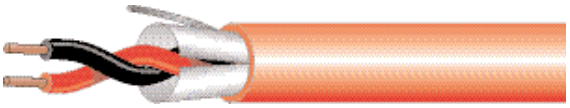
EXAMPLE:

Assume you have 10 devices on a zone and each require 50mA average and 2000ft.of 14 AWG wiring.The voltage drop at the end of the loop is .050 amps per device x 10 devices x 2.6?/1000ft x 2000 = 2.6 V.A 12 AWG would produce a drop 1.8 V, and a 18 AWG would produce a voltage drop of 6.5 V.

Notes:

• If Class A wiring is installed, the wire length may be up to 4 times the single wire length in this calculation• Consult your panel manufacturer's specifications to determine acceptable voltage drop.Do not exceed panels specifiedamperage output• All wiring must be installed in compliance with the National Electrical Code (NEC) and applicable local codes, as well as special requirements of the authority having jurisdiction, using the proper wire size.

CONVENTIONAL FIRE ALARM SYSTEM CABLES



(POWER-LIMITED) CONVENTIONAL FIRE ALARM SYSTEM CABLES:

CONDUCTOR-
- Shall not be smaller in size than a 26 AWG.
- Single conductor no smaller than 18 AWG.
- Solid or Stranded conductor.Bare Copper for lower DCResistance.

INSULATION (DIELECTRIC)-
- PVC Insulation for the FPLR cables
- Fire/ Smoke Retardant PVC for the FPLP - West PennWire “B”Series
- Flouropolymer Insulation for the FPLP - Non “B”Series.

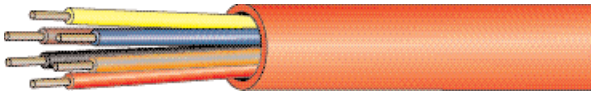
CONDUCTORS ARE EITHER TWISTED CABLED OR PARALLEL.

SHIELD-

(OPTIONAL) DEPENDANT ON SYSTEM REQUIREMENTS, AND ENVIRONMENTAL CONDITIONS -
- To protect against interference created from other cables or other electronic/electrIcal/ Mechanical devices.
- The shield is a 100% Aluminium foiled wrap.

JACKET-

PVC Jacket for the FPLR cables
- Flexible Plenum PVCjacket for the FPLP cables.
- The jacket is usually Red



(NON POWER-LIMITED) CONVENTIONAL FIRE ALARM SYSTEM CABLES:

CONDUCTOR-
- 18 AWG or smaller AWG (larger conductor)
- Solid or stranded Bare copper

INSULATION (DIELECTRIC)-
- PVC with Nylon coating • NPLF cables (Nylon for dielectric stregth)
- Flouropolymer insulation - NPLFP cablesCONDUCTORS ARE CABLED.

SHIELD-

(OPTIONAL) DEPENDANT ON SYSTEM REQUIREMENTS, AND ENVIRONMENTAL CONDITIONS
- To protect against interference created from other cables or other electronic/electrIcal/ Mechanical devices.
- The shield is a 100% Aluminium foiled wrap.

JACKET-

PVC Jacket for the NPLF cables
- Flouropolymer jacket - NPLFP cables
- Color is usually red.

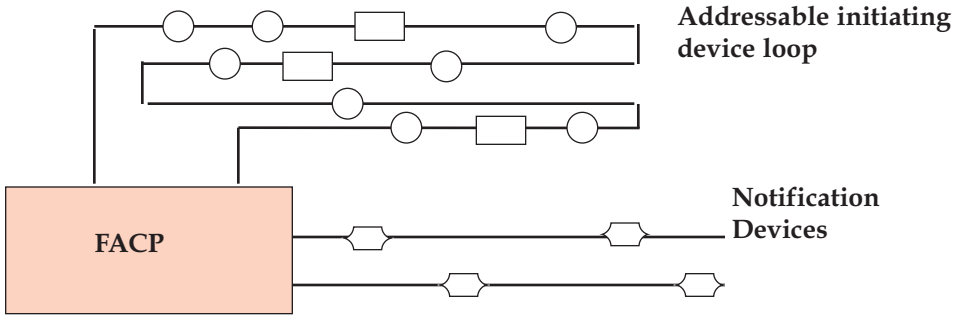
ADDRESSABLE FIRE ALARM SYSTEM

Addressable Fire Alarm Systems differ from conventional systems in a number of ways and certainly addmore flexibility, intelligence, speed of identification and scope of control.For this reason, Addressable Fire Alarm Systems are the natural choice for larger premises and buildings with morecomplex system requirements.

In an Addressable system, detectors are wired in a loop around the building with each detector havingits own unique address.The system may contain one or more loops depending upon the size of the sys-tem and design requirements.The Fire Control Panel communicates with each detector individually andreceives a status report e.g Normal, Alarm, Trouble etc.As each detector has an individual address thefire alarm control panel is able to display or indicate the precise location of the device in question, whichobviously helps speed the location of an incident and for this reason zoning of the system is not neces-sary, although it may be done for convenience.

Addressable detectors are, in themselves, intelligent devices which are capable of reporting far morethan just fire or fault conditions.Most analog addressable detectors are able to signal if contamination inthe device reaches a pre-set level enabling maintenance to take place prior to problems being experienced.

In most earlier styles of Addressable systems, the notification appliances were not intellegent.Today,many manufacturers are providing addressable notification technology.There are many advantages ofproviding such technology.Such as lower cost of wire, and overall installation time.



ADDRESSABLE FIRE ALARM CABLE SELECTION

The designer must be aware of not only the D.C Resistance of the cable, but the capacitance and theVelocity of propogation of the cable.The designer must assure that the overall loop capacitance is notcompromised, and error rates are kept to a minimum.

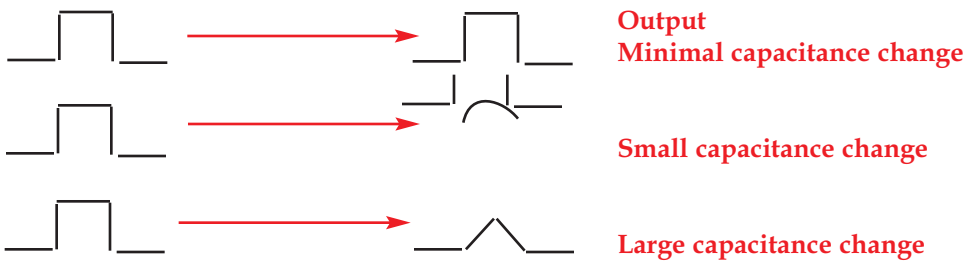
Nominal Capacitance for wire sizes:

18 AWG solid unshielded: 16pf/ft
18 AWG solid shielded: 25pf/f t45pf/ft **
16 AWG solid unshielded: 18pf/ft
16 AWG solid shielded: 30pf/ft 54pf/ft **
14 AWG solid shielded: 30pf/ft. 54pf/ft **
12 AWG solid shielded: 35pf/ft. 63pf/ft ****
Capacitance between one conductor and the other connected to the shield.

Notes:
• If Class A wiring is installed, the wire length may be up to 4 times the single wire length in this calculation
• Consult your panel manufacturer's specifications to determine acceptable loop capacitance.• All wiring must be installed in compliance with the National Electrical Code (NEC) and applicable local codes, as well as special requirements of the authority having jurisdiction, using the proper wire size.

LOW AND MID CAPACITANCE CABLES: ADDRESSABLE FIRE ALARM SYSTEM

The need to conform to the American with Disability Act (ADA), and the increased demand for addressable fire-alarm systems have created many changes in the fire-alarm cable constructions.An addressable system allows the control panel or unit to communicate with each base individuallyusing a sophisticated polling process.The polling process allows the system to detect trouble, or alarmor each base initiating devices, and in some cases the notification devices.Addressable fire-alarm signals need to be fast and have a clear signal transfer.Hence the electricalcharacteristics are a major concern in cable construction



Capacitance-The property of a system of conductors and dielectrics that allow the storage of an electrical charge when a potential difference exists between conductors.Capacitance is found betweenwo wires of a twisted pair, and also between adjacent conductors in the same cable (mutual capaci-ance).Capacitance is expressed in pf/ft.The larger the capacitance, the higher the distortions.

Velocity of propogation-refers to a ratio of a signal traveling through a cable compared to that samesignal traveling through air and is determined by the dielectric insulation material.

(POWER-LIMITED) ADDRESSABLE FIRE ALARM SYSTEM CABLES:

CONDUCTOR

- Shall not be smaller in size than a 26 AWG.
- Single conductor no smaller than 18 AWG.
- Solid or Stranded conductor.Bare Copper for lower DC Resistance.
- West Penn Wire 12 AWG up to 18 AWG.

INSULATION (DIELECTRIC)

- COPOLENE Insulation for the FPL cables.
- Thicker than conventional fire system cable insulation
- A better performance dielectric material
- Flouropolymer Insulation for the FPLP CablesTWISTED CABLE CONSTRUCTION.

SHIELD-

(OPTIONAL) DEPENDANT ON SYSTEM REQUIREMENTS, AND ENVIRONMENTAL CONDITIONS.

- To protect against interference created from other cables or other electronic/electrical/ Mechanical devices.
- The shield is a 100% Aluminium foiled wrap.JACKET
- PVC Jacket for the FPL cables• Flexible Plenum PVCjacket for the FPLP cables.

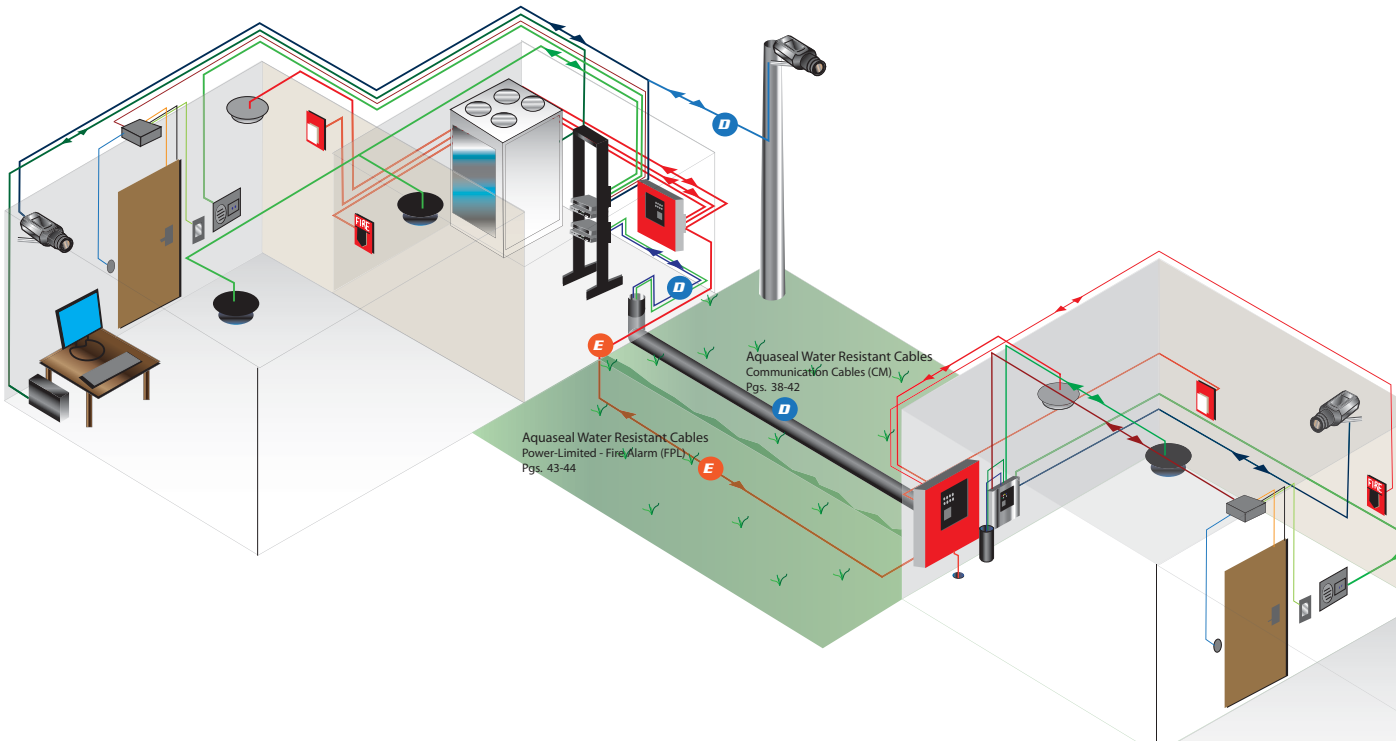
AQUASEAL WATER RESISTANT CABLE

Aquaseal Power-limited water-resistant cables are designed to be used for indoor/outdoor fire alarm sys-tem.The Aquaseal products are manufactured using a premium grade jacket compound.These cablesare flame retardant, sun-light and water resistant, and employ an abrasion and crush resistant construction.This durability allows the Aquaseal power-limited water-resistant cables to be direct burial.

The internal cable construction employs a dry water blocking barrier instead of a messy gel.Unlikemany other outdoor cables which can not be placed indoors due to their inability to pass flame tests.Aquaseal water-resistant cables carry both indoor and outdoor ratings.

Aquaseal cable retains consistent electrical characteristics compared to standard cable when immersedin water.The moisture blocking barrier used in this cable has proven itself in various tests where stan-dard outdoor cable has failed.This can be verified by monitoring the capacitance levels of both cables.Aquaseal water-resistant cables will con-sistently have lower capacitance values and remain stable overthe long haul enabling the lowest signal loss.

Aquaseal is UL listed NEC type FPL or PLTC rated and utilizing 18 AWG to 12 AWG makes this cableexcellent for low volt-age Conventional and Addressable systems.



Unshielded | FPLR

Features:
- Mid-Capacitance Performance
- Solid Conductors
- Riser Rated UL Listed - UL1666
- Meets 300V requirements specified by NEC

Applications:
Indoor for:
- Initiating Devices
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness (Inches)	Shielding	Jacket Type & Thickness (Inches)	Nom. O.D (Inches)	NEC Type	Nom. Capacitance	Jacket Colors
980	1 Pair	18 AWG Solid 6.5Ω/Mft	PP* .007	None	PVC .017	.146	FPLR	20 pf/ft	RD, BL,WH,YE
982	4	18 AWG Solid 6.5Ω/Mft	PP* .007	None	PVC .017	.170	FPLR	20 pf/ft	RD, BL,WH,YE
990	1 Pair	16 AWG Solid 4.1Ω/Mft	PP* .007	None	PVC .017	.168	FPLR	23 pf/ft	RD, BL,WH,YE
992	4	16 AWG Solid 4.1Ω/Mft	PP* .007	None	PVC .017	.198	FPLR	23 pf/ft	RD
994	1 Pair	14 AWG Solid 2.6Ω/Mft	PP* .010	None	PVC .017	.210	FPLR	22 pf/ft	RD, BL,WH,YE
700	4	14 AWG Solid 2.6Ω/Mft	PP* .010	None	PVC .017	.246	FPLR	22 pf/ft	RD
998	1 Pair	12 AWG Solid 1.8Ω/Mft	PP* .010	None	PVC .017	.244	FPLR	23 pf/ft	RD

Special Notes:
- Selected Plenum Versions see page
- Selected Indoor/Outdoor Versions see Aquaseal
- Select items are packaged in our Advantage Box.
- PP* - Polypropylene
- Rip Cord
- Spools Size - Standard 1000ft Put-ups
- Tracer markings available upon request

Unshielded | FPLP

Features:
- Mid-Capacitance Performance
- Solid Conductors
- Riser Rated UL Listed - NFPA-262 Smoke/Flame
- Meets 300V requirements specified by NEC

Applications:
Indoor for:
- Initiating Devices
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness	Shielding	Jacket Type & Thickness	Nom. O.D	NEC Type	Nom. Capacitance	Jacket Colors
			Inches		Inches	Inches			
60980B	1 Pair	18 AWG Solid 6.5Ω/Mft	.008	None	Plenum PVC .015	.144	FPLP	31 pf/ft	RD
60982B	4	18 AWG Solid 6.5Ω/Mft	.008	None	Plenum PVC .015	.166	FPLP	31 pf/ft	RD
60991B	1 Pair	16 AWG Solid 4.1Ω/Mft	.008	None	Plenum PVC .015	.164	FPLP	33 pf/ft	RD, BL, OR,WH,YE
60164B	4	16 AWG Solid 4.1Ω/Mft	.008	None	Plenum PVC .015	.191	FPLP	33 pf/ft	RD
60993B	1 Pair	14 AWG Solid 2.6Ω/Mft	.010	None	Plenum PVC .015	.198	FPLP	34 pf/ft	RD, BL,YE
60700B	4	14 AWG Solid 2.6Ω/Mft	.010	None	Plenum PVC .015	.236	FPLP	34 pf/ft	RD
60995B	1 Pair	12 AWG Solid 1.8Ω/Mft	.010	None	Plenum PVC .015	.239	FPLP	40 pf/ft	RD

Special Notes:
- Selected Plenum Versions see page
- Select items are packaged in our Advantage Box.
- PP* - Polypropylene
- Rip Cord
- Spools Size - Standard 1000ft Put-ups
- Tracer markings available upon request

Unshielded | FPLR

Features:
- Mid-Capacitance Performance
- Stranded Conductors for Flex Installations
- Riser Rated UL Listed - UL1666
- Meets 300V requirements specified by NEC

Applications:
Indoor for:
- Initiating Devices
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness (Inches)	Shielding	Jacket Type & Thickness (Inches)	Nom. O.D (Inches)	NEC Type	Nom. Capacitance	Jacket Colors
9905	1 Pair	16 AWG Strd 4.1Ω/Mft	PP* .009	None	PVC .017	.182	FPLR	19 pf/ft	● RD
9945	1 Pair	14 AWG Strd 2.6Ω/Mft	PP* .010	None	PVC .017	.224	FPLR	24 pf/ft	● RD
9985	1 Pair	12 AWG Strd 1.8Ω/Mft	PP* .010	None	PVC .017	.260	FPLR	24 pf/ft	● RD

Unshielded | FPLP

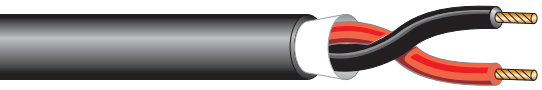
Features:
- Mid-Capacitance Performance
- Stranded Conductors for Flex Installations
- Plenum Rated - UL Listed NFPA262
- Meets 300V requirements specified by NEC

Applications:
Indoor within ducts, plenum and other spaces used for environmental air:
- Initiating Devices
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness (Inches)	Shielding	Jacket Type & Thickness (Inches)	Nom. O.D (Inches)	NEC Type	Nom. Capacitance	Jacket Colors
609915	1 Pair	16 AWG Strd 4.1Ω/Mft	.008	None	.015	.180	FPLP	33 pf/ft	● RD
609935	1 Pair	14 AWG Strd 2.6Ω/Mft	.010	None	.015	.210	FPLP	34 pf/ft	● RD
609955	1 Pair	12 AWG Strd 1.8Ω/Mft	.010	None	.015	.254	FPLP	40 pf/ft	● RD

Bulk Cable | Aquaseal® Direct Burial

Unshielded | FPL/CL3/PLTC



Features:
- Mid-Capacitance Performance
- UL Listed and Direct Burial- UL1685
- Two-Ply waterblocking tapes
- Meets 300V requirements specified by NEC

Applications:
Indoor / Outdoor Use: DIRECT BURIAL
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness (Inches)	Shielding	Jacket Type & Thickness (Inches)	Nom. O.D (Inches)	NEC Type	Nom. Capacitance	Jacket Colors
AQ224	1 Pair	18 AWG Solid 6.5Ω/Mft	PVC .015 Nylon .005	None	.035	.270	CL3/FPL PLTC	25 pf/ft	BK
AQ244	4	18 AWG Solid 6.5Ω/Mft	PVC .015 Nylon .005	None	.040	.327	CL3/FPL PLTC	25 pf/ft	BK
AQ225	1 Pair	16 AWG Solid 4.1Ω/Mft	PVC .015 Nylon .005	None	.040	.295	CL3/FPL PLTC	28 pf/ft	BK
AQ245	4	16 AWG Solid 4.1Ω/Mft	PVC .015 Nylon .005	None	.040	.355	CL3/FPL PLTC	28 pf/ft	BK
AQ226	1 Pair	14 AWG Solid 2.6Ω/Mft	PVC .015 Nylon .005	None	.040	.310	CL3/FPL PLTC	32 pf/ft	BK
AQ246	4	14 AWG Solid 2.6Ω/Mft	PVC .015 Nylon .005	None	.040	.395	CL3/FPL PLTC	32 pf/ft	BK
AQ227	1 Pair	12 AWG Solid 1.8Ω/Mft	PVC .015 Nylon .005	None	.040	.340	CL3/FPL PLTC	36 pf/ft	BK

Bulk Cable | Aquaseal® In-Conduit

WEST PENN WIRE

Unshielded | FPL/CL3/CM

Features:
- Mid-Capacitance Performance
- UL Listed CM/CL3 AND FPL
- Two-Ply waterblocking tapes
- Meets 300V requirements specified by NEC

Applications:
Indoor / Outdoor Use: IN-CONDUIT
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness (Inches)	Shielding	Jacket Type & Thickness (Inches)	Nom. O.D (Inches)	NEC Type	Nom. Capacitance	Jacket Colors
AQC224	1 Pair	18 AWG 7X26 6.2Ω/Mft	PVC .010	None	PVC .025	.218	CM/CL3 FPL	29 pf/ft	GY
AQC225	1 Pair	16 AWG 19X29 4.2Ω/Mft	PVC .010	None	PVC .025	.242	CM/CL3 FPL	32 pf/ft	GY
AQC226	1 Pair	14 AWG 19X27 2.7Ω/Mft	PVC .010	None	PVC .025	.294	CM/CL3 FPL	34 pf/ft	GY

Shielded | FPLR

Features:
- Mid-Capacitance Performance
- Some Product Available in Multiple Jacket Colors
- Riser Rated UL Listed - UL1666
- Meets 300V requirements specified by NEC

Applications:
Indoor for:
- Initiating Devices
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness (Inches)	Shielding	Jacket Type & Thickness (Inches)	Nom. O.D (Inches)	NEC Type	Nom. Capacitance	Jacket Colors
975	1 Pair	18 AWG Solid 6.5Ω/Mft	PP* .008	AL. Foil 100%	PVC .017	.150	FPLR	38 pf/ft* 69 pf/ft**	RD, BL,WH,YE
977	4	18 AWG Solid 6.5Ω/Mft	PP* .008	AL. Foil 100%	PVC .017	.180	FPLR	38 pf/ft* 69 pf/ft**	RD
991	1 Pair	16 AWG Solid 4.1Ω/Mft	PP* .008	AL. Foil 100%	PVC .017	.172	FPLR	43 pf/ft* 78 pf/ft**	RD, BL, WH, YE
993	4	16 AWG Solid 4.1Ω/Mft	PP* .008	AL. Foil 100%	PVC .017	.200	FPLR	39 pf/ft* 70 pf/ft**	RD
995	1 Pair	14 AWG Solid 2.6Ω/Mft	PP* .012	AL. Foil 100%	PVC .017	.215	FPLR	39 pf/ft* 70 pf/ft**	RD
999	1 Pair	12 AWG Solid 1.8Ω/Mft	PP* .012	AL. Foil 100%	PVC .017	.248	FPLR	44 pf/ft* 77 pf/ft**	RD

** Capacitance between conductors*
*** Capacitance between one conductor and the other connected to the shield*

Special Notes:
- Selected Plenum Versions see page
- Selected Indoor/Outdoor Versions see Aquaseal
- Select items are packaged in our Advantage Box.
- Rip cord under jacket
- PP* - Polypropylene
- Spools Size - Standard 1000ft Put-ups
- Tracer markings available upon request

Shielded | FPLP

Features:
- Mid-Capacitance Performance
- Some Product Available in Multiple Jacket Colors
- Plenum Rated - UL Listed NFPA262
- Meets 300V requirements specified by NEC

Applications:
Indoor within ducts, plenum and other spaces used for environmental air:
- Initiating Devices
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness (Inches)	Shielding	Jacket Type & Thickness (Inches)	Nom. O.D (Inches)	NEC Type	Nom. Capacitance	Jacket Colors
60975B	1 Pair	18 AWG Solid 6.5Ω/Mft	Polymer Alloy .008	AL. Foil 100%	FR PVC* .015	.148	FPLP	66 pf/ft* 119 pf/ft**	RD
60977B	4	18 AWG Solid 6.5Ω/Mft	Polymer Alloy .008	AL. Foil 100%	FR PVC* .015	.170	FPLP	66 pf/ft* 119 pf/ft**	RD
60990B	1 Pair	16 AWG Solid 4.1Ω/Mft	Polymer Alloy .008	AL. Foil 100%	FR PVC* .015	.168	FPLP	77 pf/ft* 139 pf/ft**	RD
603164B	4	16 AWG Solid 4.1Ω/Mft	Polymer Alloy .008	AL. Foil 100%	FR PVC* .015	.195	FPLP	77 pf/ft* 139 pf/ft**	RD
60992B	1 Pair	14 AWG Solid 2.6Ω/Mft	Polymer Alloy .008	AL. Foil 100%	FR PVC* .015	.202	FPLP	84 pf/ft* 151 pf/ft**	RD
60994B	1 Pair	12 AWG Solid 1.8Ω/Mft	Polymer Alloy .008	AL. Foil 100%	FR PVC* .015	.243	FPLP	84 pf/ft* 151 pf/ft**	RD

** Capacitance between conductors*
*** Capacitance between one conductor and the other connected to the shield*

Special Notes:
- Plenum Installation precautions see Technical Reference Section
- Selected items are packaged in our Advantage Box
- Spools Size - Standard 1000ft Put-ups
- FR PVC* - Flame Retardant Flexible PVC

Shielded | FPLR

Features:
- Mid-Capacitance Performance
- Stranded Conductors for Flex Installations
- Riser Rated UL Listed - UL1666
- Meets 300V requirements specified by NEC

Applications:
Indoor for:
- Initiating Devices
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness (Inches)	Shielding	Jacket Type & Thickness (Inches)	Nom. O.D (Inches)	NEC Type	Nom. Capacitance	Jacket Colors
9955	1 Pair	14 AWG Stranded 2.6Ω/Mft	PP* .012	AL. Foil 100%	PVC .017	.232	FPLR	39 pf/ft* 70 pf/ft**	RD
9995	1 Pair	12 AWG Stranded 1.8Ω/Mft	PP* .012	AL. Foil 100%	PVC .017	.264	FPLR	44 pf/ft* 77 pf/ft**	RD

** Capacitance between conductors*
*** Capacitance between one conductor and the other connected to the shield*

Shielded | FPLP

Features:
- Mid-Capacitance Performance
- Stranded Conductors for Flex Installations
- Plenum Rated - UL Listed NFPA262
- Meets 300V requirements specified by NEC

Applications:
Indoor within ducts, plenum and other spaces used for environmental air:
- Initiating Devices
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness (Inches)	Shielding	Jacket Type & Thickness (Inches)	Nom. O.D (Inches)	NEC Type	Nom. Capacitance	Jacket Colors
60990BS	1 Pair	16 AWG Stranded 4.1Ω/Mft	.008	AL. Foil 100%	FR PVC* .015	.174	FPLP	77 pf/ft* 139 pf/ft**	RD
60992BS	1 Pair	14 AWG Stranded 2.6Ω/Mft	.008	AL. Foil 100%	FR PVC* .015	.210	FPLP	84 pf/ft* 151 pf/ft**	RD
60994BS	1 Pair	12 AWG Stranded 1.8Ω/Mft	.008	AL. Foil 100%	FR PVC* .015	.249	FPLP	84 pf/ft* 151 pf/ft**	RD

** Capacitance between conductors*
*** Capacitance between one conductor and the other connected to the shield*

Special Notes:
- Plenum Installation precautions see Technical Reference Section
- Selected items are packaged in our Advantage Box
- Spools Size - Standard 1000ft Put-ups
- FR PVC* - Flame Retardant Flexible PVC

Shielded | FPL/CL3/PLTC

Features:
- Mid-Capacitance Performance
- UL Listed and Direct Burial- UL1685
- Two-Ply waterblocking tapes
- Meets 300V requirements specified by NEC

Applications:
Indoor / Outdoor Use: DIRECT BURIAL
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness (Inches)	Shielding	Jacket Type & Thickness (Inches)	Nom. O.D (Inches)	NEC Type	Nom. Capacitance	Jacket Colors
AQ293	1 Pair	18 AWG Solid 6.5Ω/Mft	PVC .015 Nylon .005	AL. Foil 100%	.040	.310	CL3/FPL PLTC	32 pf/ft* 58 pf/ft**	BK
AQ3244	4	18 AWG Solid 6.5Ω/Mft	PVC .015 Nylon .005	AL. Foil 100%	.040	.371	CL3/FPL PLTC	32 pf/ft* 58 pf/ft**	BK
AQ294	1 Pair	16 AWG Solid 4.1Ω/Mft	PVC .015 Nylon .005	AL. Foil 100%	.040	.328	CL3/FPL PLTC	37 pf/ft* 67 pf/ft**	BK
AQ3245	4	16 AWG Solid 4.1Ω/Mft	PVC .015 Nylon .005	AL. Foil 100%	.040	.415	CL3/FPL PLTC	37 pf/ft* 67 pf/ft**	BK
AQ295	1 Pair	14 AWG Solid 2.6Ω/Mft	PVC .015 Nylon .005	AL. Foil 100%	.040	.350	CL3/FPL PLTC	46 pf/ft* 83 pf/ft**	BK
AQ296	1 Pair	12 AWG Solid 1.8Ω/Mft	PVC .015 Nylon .005	AL. Foil 100%	.040	.375	CL3/FPL PLTC	54 pf/ft* 97 pf/ft**	BK

** Capacitance between conductors*
*** Capacitance between one conductor and the other connected to the shield*

Bulk Cable | Aquaseal® In-Conduit
WEST PENN WIRE

Shielded | FPL/CL3/CM

Features:
- Mid-Capacitance Performance
- UL Listed CM/CL3 AND FPL
- Two-Ply waterblocking tapes
- Meets 300V requirements specified by NEC

Applications:
Indoor / Outdoor Use: IN-CONDUIT
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness (Inches)	Shielding	Jacket Type & Thickness (Inches)	Nom. O.D (Inches)	NEC Type	Nom. Capacitance	Jacket Colors
AQC293	1 Pair	18 AWG 7X26 6.2Ω/Mft	.010	AL. Foil 100%	PVC .025	.257	CM/CL3 FPL	46 pf/ft* 83 pf/ft**	GY
AQC294	1 Pair	16 AWG 19X29 4.2Ω/Mft	.010	AL. Foil 100%	PVC .025	.281	CM/CL3 FPL	54 pf/ft* 97 pf/ft**	GY
AQC295	1 Pair	14 AWG 19X27 2.7Ω/Mft	.010	AL. Foil 100%	PVC .025	.333	CM/CL3 FPL	59 pf/ft* 106 pf/ft**	GY

Unshielded | FPLR

Features:
- Low-Capacitance Performance
- Digital Audio Impedance Performance
- Riser Rated UL Listed - UL1666
- Meets 300V requirements specified by NEC

Applications:
Indoor for:
- Initiating Devices
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits - Digital Audio Loops

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness (Inches)	Shielding	Jacket Type & Thickness (Inches)	Nom. O.D (Inches)	NEC Type	Nom. Capacitance & Impedance	Jacket Colors
D980	1 Pair	18 AWG Solid 6.5Ω/Mft	Polyolefin .015	None	PVC .030	.196	FPLR	15 pf/ft 105Ω	RD
D990	1 Pair	16 AWG Solid 4.1Ω/Mft	Polyolefin .015	None	PVC .030	.223	FPLR	17 pf/ft 105Ω	RD

Bulk Cable | FIRE ALARM - Addressable
WEST PENN WIRE

Shielded | FPLR

Features:
- Lpw-Capacitance Performance
- Addressable - Data Link Systems
- Riser Rated UL Listed - UL1666
- Meets 300V requirements specified by NEC

Applications:
Indoor for:
- Initiating Devices
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness (Inches)	Shielding	Jacket Type & Thickness (Inches)	Nom. O.D (Inches)	NEC Type	Nom. Capacitance	Jacket Colors
D975	1 Pair	18 AWG Solid 6.5Ω/Mft	Polyolefin .015	AL. Foil 100%	PVC .035	.223	FPLR	25 pf/ft* 45 pf/ft**	RD
D991	1 Pair	16 AWG Solid 4.1Ω/Mft	Polyolefin .015	AL. Foil 100%	PVC .035	.245	FPLR	30 pf/ft* 54 pf/ft**	RD
D995	1 Pair	14 AWG Solid 2.6Ω/Mft	Polyolefin .020	AL. Foil 100%	PVC .035	.281	FPLR	30 pf/ft* 54 pf/ft**	RD

** Capacitance between conductors*
*** Capacitance between one conductor and the other connected to the shield*

Unshielded | FPLP

Features:
- Low-Capacitance Performance
- Digital Audio Impedance Performance
- Plenum Rated - UL Listed NFPA262
- Meets 300V requirements specified by NEC

Applications:
Indoor within ducts, plenum and other spaces used for environmental air:
- Initiating Devices
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness (Inches)	Shielding	Jacket Type & Thickness (Inches)	Nom. O.D (Inches)	NEC Type	Nom. Capacitance	Jacket Colors
D60980	1 Pair	18 AWG Solid 6.5Ω/Mft	FEP .012	None	.015	.144	FPLP	15 pf/ft	RD
D60991	1 Pair	16 AWG Solid 4.1Ω/Mft	FEP .012	None	.015	.164	FPLP	16 pf/ft	RD

Bulk Cable | FIRE ALARM Plenum
WEST PENN WIRE

Shielded | FPLP

Features:
- Mid-Capacitance Performance
- Addressable - Data Link Systems
- Plenum Rated - UL Listed NFPA262
- Meets 300V requirements specified by NEC

Applications:
Indoor within ducts, plenum and other spaces used for environmental air:
- Initiating Devices
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness (Inches)	Shielding	Jacket Type & Thickness (Inches)	Nom. O.D (Inches)	NEC Type	Nom. Capacitance	Jacket Colors
60975B	1 Pair	18 AWG Solid 6.5Ω/Mft	FEP .012	AL. Foil 100%	FR PVC* .015	.165	FPLP	25 pf/ft* 45 pf/ft**	RD
60990B	1 Pair	16 AWG Solid 4.1Ω/Mft	FEP .012	AL. Foil 100%	FR PVC* .015	.188	FPLP	30 pf/ft* 54 pf/ft**	RD

** Capacitance between conductors*
*** Capacitance between one conductor and the other connected to the shield*

Special Notes:
- Plenum Installation precautions see Technical Reference Section
- Selected items are packaged in our Advantage Box
- Spools Size - Standard 1000ft Put-ups
- Tracer markings available upon request

Unshielded | FPLP LL5

Features:
- Mid-Capacitance Performance
- 150˚ Performance
- New York City- Fire Alarm Cable LL5
- Plenum Rated - UL Listed NFPA262
- Meets 300V requirements specified by NEC

Applications:
Indoor for:
- Initiating Devices
- Signal Line Circuits
- Notification Devices
- Control Circuts

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness	Shielding	Jacket Type & Thickness	Nom. O.D	NEC Type	Nom. Capacitance	Jacket Colors
			Inches		Inches	Inches			
LL5182	1 Pair	18 AWG Solid 6.5Ω/Mft	.016	None	.026	.205	FPLP	29 pf/ft	RD
LL5184	4	18 AWG Solid 6.5Ω/Mft	.016	None	.026	.238	FPLP	29 pf/ft	RD
LL5162	1 Pair	16 AWG Solid 4.1Ω/Mft	.016	None	.026	.225	FPLP	32 pf/ft	RD
LL5164	4	16 AWG Solid 4.1Ω/Mft	.016	None	.026	.265	FPLP	32 pf/ft	RD
LL5142	1 Pair	14 AWG Solid 2.6Ω/Mft	.016	None	.026	.248	FPLP	35 pf/ft	RD
LL5144	4	14 AWG Solid 2.6Ω/Mft	.016	None	.026	.302	FPLP	35 pf/ft	RD
LL5122	1 Pair	12 AWG Solid 1.8Ω/Mft	.016	None	.026	.278	FPLP	45 pf/ft	RD

Special Notes:
- Insulation and Jacketing Compounds (Fluoropolymers) are rated for 150˚ Performance.

Shielded | FPLP

Features:
- Mid-Capacitance Performance
- Some Product Available in Multiple Jacket Colors
- Plenum Rated - UL Listed NFPA262
- Meets 300V requirements specified by NEC

Applications:
Indoor within ducts, plenum and other spaces used for environmental air:
- Initiating Devices
- Signal Line Circuits
- Notification Devices
- Control Circuts
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness (Inches)	Shielding	Jacket Type & Thickness (Inches)	Nom. O.D (Inches)	NEC Type	Nom. Capacitance	Jacket Colors
LL51825H	1 Pair	18 AWG Solid 6.5Ω/Mft	.016	AL. Foil 100%	.026	.210	FPLP	54 pf/ft* 97 pf/ft**	RD
LL51845H	4	18 AWG Solid 6.5Ω/Mft	.016	AL. Foil 100%	.026	.245	FPLP	54 pf/ft* 97 pf/ft**	RD
LL51625H	1 Pair	16 AWG Solid 4.1Ω/Mft	.016	AL. Foil 100%	.026	.230	FPLP	61 pf/ft* 110 pf/ft**	RD
LL51645H	4	16 AWG Solid 4.1Ω/Mft	.016	AL. Foil 100%	.026	.272	FPLP	61 pf/ft* 110 pf/ft**	RD
LL51425H	1 Pair	14 AWG Solid 2.6Ω/Mft	.016	AL. Foil 100%	.026	.258	FPLP	84 pf/ft* 151 pf/ft**	RD
LL51225H	1 Pair	12 AWG Solid 1.8Ω/Mft	.016	AL. Foil 100%	.026	.285	FPLP	84 pf/ft* 151 pf/ft**	RD

** Capacitance between conductors*
*** Capacitance between one conductor and the other connected to the shield*

Special Notes:
- Insulation and Jacketing Compounds (Fluoropolymers) are rated for 150˚ Performance.

Bulk Cable | FIRE ALARM - Power Limited Parallel

WEST PENN WIRE

Unshielded | FPL

Features:
- 2 Conductor Parallel
- Hook-Up Constructed

Applications:
Indoor for:
- Smoke Detectors
- Signal
- Detection/Monitor

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness	Shielding	Jacket Type & Thickness	Nom. O.D	NEC Type	Nom. Capacitance	Jacket Colors
			Inches		Inches	Inches			
970	2	18 AWG Solid 6.5Ω/Mft	PVC .032	None	None	.104x.204	FPL	--	RD
971	2	16 AWG Solid 4.1Ω/Mft	PVC .032	None	None	.115x.225	FPL	--	RD
972	2	14 AWG Solid 2.6Ω/Mft	PVC .032	None	None	.128x.228	FPL	--	RD

Bulk Cable | FIRE ALARM - Non-Powered Limited

WEST PENN WIRE

Shielded | FPLR

Features:
- Non-Power Limited

Applications:
Indoor for:
- Initiating Devices
- Signal Line Circuits
- Notification Devices
- Control Circuits
- Audio Circuits

Catalog No.	No. of Conductors	Cond. Type & Nom. DCR	Insulation Type & Thickness	Shielding	Jacket Type & Thickness	Nom. O.D	NEC Type	Nom. Capacitance	Jacket Colors
			Inches		Inches	Inches			
1975	1 Pair	18 AWG Solid 6.5Ω/Mft	PVC .016 Nylon .005	AL. Foil 100%	PVC .037	.244	NPLF	52 pf/ft* 94 pf/ft**	RD
1991	1 Pair	16 AWG Solid 4.1Ω/Mft	PVC .016 Nylon .005	AL. Foil 100%	PVC .037	.264	NPLF	57 pf/ft* 103 pf/ft**	RD
1995	1 Pair	14 AWG Solid 2.6Ω/Mft	PVC .016 Nylon .005	AL. Foil 100%	PVC .037	.284	NPLF	64 pf/ft* 115 pf/ft**	RD

** Capacitance between conductors*
*** Capacitance between one conductor and the other connected to the shield*

Power Limited vs. Non-Power Limited

Power-Limited Fire Alarm (PLFA) Circuits. A power-limited fire alarm circuit is one that is inherently unable to exceed maximum voltages, or is equipped with a power-limiting source (transformer or battery) and a circuit breaker. Generally, these operate in the 24-volt direct current range, although they may employ higher voltages. 300V Rating - FPL, FPLR, or FPLP

Nonpower-LimitedFireAlarm(NPLFA)Circuits. Nonpower-limitedfire alarm circuits cannot operate at more than 600 volts, and there is no other power or current limitation for these systems. Usually these are used in 120- volt alternating current (AC) systems which have been rendered generally obsolete by the advent of low-voltage, direct current (DC) systems. 600V Rating - NPLF, NPLFP

18 AWG UNSHIELDED					
AWG	# Cond.	SOL/STRD	DCR Ohms	Nom.Cap pf/ft.	Part No.
RISER RATED - FPLR					
18	2	SOL	6.5	19	980
18	4	SOL	6.5	19	982
PLENUM RATED - FPLP					
18	2	SOL	6.5	31	60980B
18	4	SOL	6.5	31	60982B

18 AWG SHIELDED					
AWG	# Cond.	SOL/STRD	DCR Ohms	Nom.Cap pf/ft.	Part No.
RISER RATED - FPLR					
18	2	SOL	6.5	39	975
18	4	SOL	6.5	39	977
PLENUM RATED - FPLP					
18	2	SOL	6.5	66	60975B
18	4	SOL	6.5	66	60977B

16 AWG UNSHIELDED					
AWG	# Cond.	SOL/STRD	DCR Ohms	Nom.Cap pf/ft.	Part No.
RISER RATED - FPLR					
16	2	SOL	4.1	20	990
16	2	STRD	4.1	20	990S
16	4	SOL	4.1	20	992
PLENUM RATED - FPLP					
16	2	SOL	4.1	34	60991B
16	2	STRD	4.1	34	60991BS
16	4	SOL	4.1	34	60164B

16 AWG SHIELDED					
AWG	# Cond.	SOL/STRD	DCR Ohms	Nom.Cap pf/ft.	Part No.
RISER RATED - FPLR					
16	2	SOL	4.1	38	975
16	4	SOL	4.1	38	977
PLENUM RATED - FPLP					
16	2	SOL	4.1	77	60975B
16	2	STRD	4.1	77	90990BS
16	4	SOL	4.1	77	60977B

14 AWG UNSHIELDED					
AWG	# Cond.	SOL/STRD	DCR Ohms	Nom.Cap pf/ft.	Part No.
RISER RATED - FPLR					
14	2	SOL	4.1	22	994
14	2	STRD	4.1	22	994S
14	4	SOL	4.1	22	700
PLENUM RATED - FPLP					
14	2	SOL	4.1	33	60993B
14	2	STRD	4.1	33	60993BS
14	4	SOL	4.1	33	60700B

14 AWG SHIELDED					
AWG	# Cond.	SOL/STRD	DCR Ohms	Nom.Cap pf/ft.	Part No.
RISER RATED - FPLR					
14	2	SOL	4.1	43	995
14	2	STRD	4.1	43	995S
PLENUM RATED - FPLP					
14	2	SOL	4.1	84	60992B
14	2	STRD	4.1	84	60992BS

12 AWG UNSHIELDED					
AWG	# Cond.	SOL/STRD	DCR Ohms	Nom.Cap pf/ft.	Part No.
RISER RATED - FPLR					
12	2	SOL	4.1	22	998
12	2	STRD	4.1	22	998S
PLENUM RATED - FPLP					
12	2	SOL	4.1	40	60995B
12	2	STRD	4.1	40	60995BS

12 AWG SHIELDED					
AWG	# Cond.	SOL/STRD	DCR Ohms	Nom.Cap pf/ft.	Part No.
RISER RATED - FPLR					
12	2	SOL	4.1	44	999
12	2	STRD	4.1	44	999S
PLENUM RATED - FPLP					
12	2	SOL	4.1	96	60994B
12	2	STRD	4.1	96	60994BS

MID CAPACITANCE UNSHIELDED CABLES					
AWG	# Cond.	SOL/STRD	DCR Ohms	Nom.Cap pf/ft.	Part No.
RISER RATED - FPLR					
18	2	SOL	6.5	15	D980
16	2	SOL	4.1	17	D990
PLENUM RATED - FPLP					
18	2	SOL	6.5	15	D60980
16	2	SOL	4.1	17	D60991

Impedance:
D980: 110Ω
D990: 103Ω

MID CAPACITANCE SHIELDED CABLES					
AWG	# Cond.	SOL/STRD	DCR Ohms	Nom.Cap pf/ft.	Part No.
RISER RATED - FPLR					
18	2	SOL	6.5	24	D975
16	2	SOL	4.1	29	D991
14	2	SOL	2.6	29	D995
PLENUM RATED - FPLP					
18	2	SOL	6.5	24	D609975
16	2	SOL	4.1	29	D60990

Fire Alarm Cables by WEST PENN WIRE

INDOOR/OUTDOOR DIRECT BURIAL FIRE ALARM CABLES

UNSHIELDED - DIRECT BURIAL FPL RATED					
AWG	# Cond.	SOL/STRD	DCR Ohms	Nom.Cap pf/ft.	Part No.
2 CONDUCTOR FPL RATED					
18	2	STRD	6.5	24	AQ224
16	2	STRD	4.1	26	AQ225
14	2	STRD	2.7	31	AQ226
12	2	STRD	1.7	35	AQ227
4 CONDUCTOR FPL RATED					
18	4	STRD	6.5	24	AQ244
16	4	STRD	4.1	26	AQ245
14	4	STRD	2.7	31	AQ246

SHIELDED - DIRECT BURIAL FPL RATED					
AWG	# Cond.	SOL/STRD	DCR Ohms	Nom.Cap pf/ft.	Part No.
2 CONDUCTOR FPL RATED					
18	2	STRD	6.5	31	AQ293
16	2	STRD	4.1	36	AQ294
14	2	STRD	2.7	45	AQ295
12	2	STRD	1.7	52	AQ296
4 CONDUCTOR FPL RATED					
18	4	STRD	6.5	31	AQ3244
16	4	STRD	4.1	36	AQ3245

Fire Alarm Cables by WEST PENN WIRE

INDOOR/OUTDOOR IN-CONDUIT FIRE ALARM CABLES

UNSHIELDED - IN-CONDUIT FPL RATED					
AWG	# Cond.	SOL/STRD	DCR Ohms	Nom.Cap pf/ft.	Part No.
2 CONDUCTOR FPL RATED					
18	2	STRD	6.5	29	AQC224
16	2	STRD	4.1	31	AQC225
14	2	STRD	2.7	33	ACQ226

SHIELDED - IN-CONDUIT FPL RATED					
AWG	# Cond.	SOL/STRD	DCR Ohms	Nom.Cap pf/ft.	Part No.
2 CONDUCTOR FPL RATED					
18	2	STRD	6.5	45	AQC293
16	2	STRD	4.1	53	AQC294
14	2	STRD	2.7	57	ACQ295

UNSHIELDED - IN-CONDUIT FPL RATED - Digital Audio Loops					
AWG	# Cond.	SOL/STRD	DCR Ohms	Nom.Cap pf/ft.	Part No.
2 CONDUCTOR FPL RATED					
18	2	STRD	6.5	15	AQC182

Pending UL

Impedance:
AQC182: 110Ω

A. Color Code

Cond.	Conductor Colors
1	Red
2	Black
3	Brown
4	Blue
Jacket Colors: Standard Color: RD	

SYSTEM LAYOUTS:

The initiating circuits that connect detectors to a control panel should be supervised so that a fault (trouble) condition that could interfere with the proper operation of the circuit will be detected and annunciated.

Detectors are generally categorized as either 2-wire or 4-wire detectors.Two-wire detectors derive theirpower directly from the same fire alarm control panel alarm initiating device circuit over which they reportan alarm.Because of their dependency on the initiating circuit, 2-wire detectors must be tested and list-ed for compatibility with the control panel to be used, to ensure proper operation.

Four-wire detectors are powered from a separate pair of wires, and like the 2-wire detector, apply anelectrical short across the associated alarm initiating device to transmit an alarm.Because they do notderive their power from the alarm control panel circuit, compatibility is predicated upon the operatingparameters of the power supply to which the detectors are connected and not the initiating circuit.Supervision of the power to 4-wire detectors is mandated through the use of an end of line power super-vision relay (EOLR).When power is on, the relay contacts at the end of line relay are closed and con-nected in series with the end of line resistors beyond the last initiating device.Loss of power at anypoint in the power supply circuit will cause the relay to de-energize and a trouble condition to occur onthe initiating circuit.

CLASS B CIRCUITS: Class B circuits differentiate between short circuits across the loop (alarm) and opens on the loop (trouble).Supervision of this circuit is accomplished by passing a low current through the installationwiring and an EOLR.Increases or decreases in this supervisory current are monitored by the fire alarmcontrol panel and will cause alarm or trouble conditions, respectively, to be indicated.A single onpen ina Class B circuit disables all devices electrically beyond open.

CLASS A CIRCUITS: Class A circuits also differentiate between short circuits across the loop and opens on the loop.Supervision is accomplished by monitoring the level of current passing through the installation wiringand the EOLR, which in a Class A circuit is an integral part of the fire alarm control panel.Class Awiring must return to and be terminated in the control panel.This technique requires a minimum of fourwires be terminated in the control panel, and further requires that the fire alarm control panel isdesigned to monitor Class A circuits.The additional circuitry neccessary for Class A supervisionenables the control panel to “condition”the initiating circuit to monitor the initiating circuit from both endswhen in a trouble mode due to an open fault on the loop.This “conditioning”ensures that all devices arecapable of responding and reporting an alarm despite a single open or non-simultaneous single groundfault on a circuit conductor.

FIRE ALARM SYSTEM MANUFACTURERS

Edwards System Technology (EST) www.est.net

Faraday Fire	www.faradayllc.com
Fenwal Fire	www.fenwalfire.com
Fike Fire Alarm	www.fike.com
Fire Control Instruments	www.firecontrolinstruments.com
Fire-Lite Alarms	www.firelite.com
Gamewell	www.gamewell.com
Harrington Signal	www.harringtonfire.com
Hochiki	www.hochiki.com
Notifier	www.notifier.com
Secutron	www.secutron.com
Sentrol	www.sentrol.com
Siemens Cerberus	www.sbt.siemens.com
Silent Knight	www.silentknight.com
Simplex Grinnell	www.simplexgrinnell.com
System Sensor	www.systemsensor.com